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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

ABBAS *et al.*

Appl. No. 09/903,508

Filed: July 13, 2001

For: Transformation Systems for  
Flavinogenic Yeast

Art Unit: 1645

Examiner: To Be Assigned

Atty. Docket: 1533.0830003/MAC/RGM

**Information Disclosure Statement**

Commissioner for Patents  
Washington, D.C. 20231

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98. A copy of each of these documents is provided.

In accordance with 37 C.F.R. § 1.98(a)(3), Applicants' undersigned representative submits the following, in regard to non-English language documents AL1, AN1 and AR15 cited on Form PTO 1449:

Document AL1, WO 95/26406, is in a foreign language. AL1 is believed to disclose the DNA sequences corresponding to six genes for riboflavin biosynthesis from *Ashbya gossypii*. An English language abstract of document AL1 is attached as document AS3.

Document AN1, WO 99/61623, is in a foreign language. AN1 is believed to disclose the DNA sequences corresponding to three genes for riboflavin synthesis from *Ashbya gossypii* and a method for increasing riboflavin production in *Ashbya gossypii*. An English language abstract of document AN1 is attached as document AR3.

Document AR4 is in a foreign language. Document AR4 is believed to disclose a thermostable riboflavin kinase in *Pichia guilliermondii* yeast. An English language abstract appears at the end of the article.

Document AS7 is in a foreign language. Document AS7 is believed to disclose the cloning of the *Pichia guilliermondii* riboflavin synthase gene. An English language abstract appears at the end of the article.

Document AS8 is in a foreign language. Document AS8 is believed to disclose transformation of *Hansenula polymorpha*, *Pichia guilliermondii* and *Williopsis saturnus* by a plasmid containing the *S. cerevisiae* ADE2 gene. An English language abstract appears at the end of the article.

Document AT10 is in a foreign language. Document AT10 is believed to disclose a flavinogenous mutant of the yeast *Pichia guilliermondii* with damaged transport of iron. An English language abstract appears at the end of the article.

Document AT11 is in a foreign language. Document AT11 is believed to disclose detection of cryptic riboflavin permease in *Pichia guilliermondii* yeast. An English language abstract appears at the end of the article.

Document AR12 is in a foreign language. Document AR12 is believed to disclose the effect of glucose and its derivatives on systems of riboflavin uptake and excretion in *Pichia guilliermondii* yeast. An English language abstract appears at the end of the article.

Document AS12 is in a foreign language. Document AS12 is believed to disclose inhibition of alkaline phosphatase I of *Pichia guilliermondii* yeast *in vitro* and *in vivo*. An English language abstract appears at the end of the article.

Document AT14 is in a foreign language. Document AT14 is believed to disclose the development of cloning and expression transformation systems for nonconventional yeasts. An English language abstract appears at the end of the article.

Document AR15 is in a foreign language. AR15 is believed to disclose methods for genetically transforming the flavinogenic yeasts *Pichia guilliermondii* and *Candida famata*. An English translation of document AR15 is attached as document AS15.

Document AS16 is in a foreign language. Document AS16 is believed to disclose the cloning of the RIB1 gene coding for the enzyme of the first stage of flavinogenesis in *Pichia guilliermondii* yeast and GTP cyclohydrolase in *E. coli* cells. An English language abstract appears at the end of the article.

Document AT16 is in a foreign language. Document AT16 is believed to disclose the respiration system of *Pichia guilliermondii* yeast at different levels of flavinogenesis. An English language abstract appears at the end of the article.

Document AR17 is in a foreign language. Document AR17 is believed to disclose the respiration system of *Pichia guilliermondii* yeast at different levels of flavinogenesis. An English language abstract appears at the end of the article.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not an issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.


This Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits. No statement or fee is required.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036. A duplicate copy of this pleading is enclosed.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



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## INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO.  
1533.0830003/MAC/RGMAPPLICATION NO.  
09/903,508APPLICANT  
ABBAS et al.FILING DATE  
July 13, 2001GROUP  
1646

## U.S. PATENT DOCUMENTS

| EXAMINER<br>INITIAL |     | DOCUMENT<br>NUMBER | DATE       | NAME           | CLASS | SUB-<br>CLASS | FILING DATE |
|---------------------|-----|--------------------|------------|----------------|-------|---------------|-------------|
|                     | AA1 | 4,745,057          | 05/17/1988 | Beckage et al. | 435   | 68            | 08/13/1984  |
|                     | AB1 | 4,794,081          | 12/27/1988 | Kawai et al.   | 435   | 66            | 08/21/1984  |
|                     | AC1 | 4,808,537          | 02/28/1989 | Stroman et al. | 435   | 6             | 10/30/1984  |
|                     | AD1 | 4,837,148          | 06/06/1989 | Cregg, J.M.    | 435   | 172.3         | 10/30/1984  |
|                     | AE1 | 4,855,231          | 08/08/1989 | Stroman et al. | 435   | 68            | 09/25/1985  |
|                     | AF1 | 4,879,231          | 11/07/1989 | Stroman et al. | 435   | 172.3         | 10/30/1984  |
|                     | AG1 | 4,882,279          | 11/21/1989 | Cregg, J.M.    | 435   | 172.3         | 10/25/1985  |
|                     | AH1 | 4,885,242          | 12/05/1989 | Cregg, J.M.    | 435   | 68            | 10/30/1984  |
|                     | AI1 | 4,925,794          | 05/15/1990 | Isogai et al.  | 435   | 91            | 12/11/1985  |
|                     | AJ1 | 4,929,555          | 05/29/1990 | Cregg et al.   | 435   | 172.3         | 10/19/1987  |
|                     | AK1 | 4,935,350          | 06/19/1990 | Patel et al.   | 435   | 69.4          | 11/18/1985  |

## FOREIGN PATENT DOCUMENTS

| EXAMINER<br>INITIAL |     | DOCUMENT<br>NUMBER | DATE       | COUNTRY | CLASS | SUB-<br>CLASS | TRANSLATION |
|---------------------|-----|--------------------|------------|---------|-------|---------------|-------------|
|                     | AL1 | WO 95/26406        | 10/05/1995 | WIPO    |       |               | Yes<br>X No |
|                     | AM1 | EP 0 967 287<br>A2 | 12/29/1999 | Europe  |       |               | Yes<br>No   |
|                     | AN1 | WO 99/61623        | 12/02/1999 | WIPO    |       |               | Yes<br>X No |
|                     | AO  |                    |            |         |       |               | Yes<br>No   |
|                     | AP  |                    |            |         |       |               | Yes<br>No   |

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

|  |    |          |  |
|--|----|----------|--|
|  | AR | <u>1</u> | Becker, D.M., and Guarente, L., "High-Efficiency Transformation of Yeast by Electroporation," <i>Meth. Enzymol.</i> 194:182-187, Academic Press, Inc. (1991).  |
|  | AS | <u>1</u> | Birnboim, H.C., and Doly, J., "A rapid alkaline extraction procedure for screening recombinant plasmid DNA," <i>Nucl. Acids Res.</i> 7:1513-1523, Oxford University Press (1979).                                      |
|  | AT | <u>1</u> | Boretsky, Y., et al., "Identification of an ARS element and development of a high efficiency transformation system for <i>Pichia guilliermondii</i> ," <i>Curr. Genet.</i> 36:215-221, Springer-Verlag (October 1999). |

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|---------------------|-----|--------------------|------------|---------------------|-------|---------------|-------------|
|                     | AA2 | 4,937,193          | 06/26/1990 | Hinchliffe et al.   | 435   | 172.3         | 06/26/1987  |
|                     | AB2 | 4,943,529          | 07/24/1990 | Van den Berg et al. | 435   | 172.3         | 07/28/1987  |
|                     | AC2 | 4,990,446          | 02/05/1991 | Oberto et al.       | 435   | 69.1          | 12/05/1985  |
|                     | AD2 | 4,997,767          | 03/05/1991 | Nozaki et al.       | 435   | 320.1         | 12/23/1986  |
|                     | AE2 | 5,041,384          | 08/20/1991 | Wilson et al.       | 435   | 255           | 05/30/1990  |
|                     | AF2 | 5,118,625          | 06/02/1992 | Aiba et al.         | 435   | 255           | 12/16/1988  |
|                     | AG2 | 5,120,655          | 06/09/1992 | Foster et al.       | 435   | 255           | 06/05/1987  |
|                     | AH2 | 5,126,248          | 06/30/1992 | Matsuyama et al.    | 435   | 66            | 08/11/1989  |
|                     | AI2 | 5,135,868          | 08/04/1992 | Cregg, J.M.         | 435   | 255           | 09/01/1989  |
|                     | AJ2 | 5,164,303          | 11/17/1992 | Heefner et al.      | 435   | 66            | 02/15/1990  |
|                     | AK2 | 5,210,023          | 05/11/1993 | Grimmer et al.      | 435   | 66            | 07/01/1991  |

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|---------------------|----|--------------------|------|---------|-------|---------------|-------------|
|                     | AL |                    |      |         |       |               | Yes<br>No   |
|                     | AM |                    |      |         |       |               | Yes<br>No   |
|                     | AN |                    |      |         |       |               | Yes<br>No   |
|                     | AO |                    |      |         |       |               | Yes<br>No   |
|                     | AP |                    |      |         |       |               | Yes<br>No   |

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

|  |    |   |  |
|--|----|---|--|
|  | AR | 2 | Cannon, R.D., et al., "Isolation and nucleotide sequence of an autonomously replicating sequence (ARS) element functional in <i>Candida albicans</i> and <i>Saccharomyces cerevisiae</i> ," <i>Mol. Gen. Genet.</i> 221:210-218, Springer-Verlag (1990). |
|  | AS | 2 | Clyne, R.K., and Kelly, T.J., "Genetic analysis of an ARS element from the fission yeast <i>Schizosaccharomyces pombe</i> ," <i>EMBO J.</i> 14:6348-6357, Oxford University Press (1995).  |
|  | AT | 2 | Cregg, J.M., et al., " <i>Pichia pastoris</i> as a Host System for Transformations," <i>Mol. Cell. Biol.</i> 5:3376-3385, American Society for Microbiology (1985).  |

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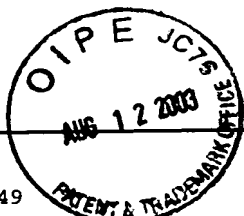
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|---------------------|-----|--------------------|------------|-----------------|-------|---------------|-------------|
|                     | AA3 | 5,212,087          | 05/18/1993 | Fournier et al. | 435   | 255           | 01/27/1989  |
|                     | AB3 | 5,231,007          | 07/27/1993 | Heefner et al.  | 435   | 66            | 08/15/1991  |
|                     | AC3 | 5,268,273          | 12/07/1993 | Buckholz, R.G.  | 435   | 69.1          | 12/14/1990  |
|                     | AD3 | 5,334,510          | 08/02/1994 | Usui et al.     | 435   | 66            | 09/09/1992  |
|                     | AE3 | 5,460,949          | 10/24/1995 | Saunders et al. | 435   | 55            | 10/28/1991  |
|                     | AF3 | 5,589,355          | 12/31/1996 | Koizumi et al.  | 435   | 66            | 06/06/1995  |
|                     | AG3 | 5,665,600          | 09/09/1997 | Hagenson et al. | 435   | 320.1         | 09/18/1991  |
|                     | AH3 | 5,700,643          | 12/23/1997 | Kawasaki, G.    | 435   | 6             | 06/06/1995  |
|                     | AI3 | 5,716,808          | 02/10/1998 | Raymond, C.K.   | 435   | 69.1          | 08/26/1996  |
|                     | AJ3 | 5,736,383          | 04/07/1998 | Raymond, C.K.   | 435   | 255.7         | 08/26/1996  |
|                     | AK3 | 5,817,503          | 10/06/1998 | Chambon et al.  | 435   | 254.2         | 05/30/1995  |

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|---------------------|----|--------------------|------|---------|-------|---------------|-------------|
|                     | AL |                    |      |         |       |               | Yes<br>No   |
|                     | AM |                    |      |         |       |               | Yes<br>No   |
|                     | AN |                    |      |         |       |               | Yes<br>No   |
|                     | AO |                    |      |         |       |               | Yes<br>No   |
|                     | AP |                    |      |         |       |               | Yes<br>No   |

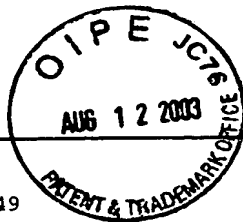
**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

|  |    |   |   |
|--|----|---|---|
|  | AR | 3 | Dialog File 351, Accession No. 12891639, Derwent WPI English Language abstract for WO99/61623 (Document AN1).   |
|  | AS | 3 | Dialog File 351, Accession No. 10444341, Derwent WPI English Language abstract for WO 95/26406 (Document AL1).  |
|  | AT | 3 | Faber, K.N., et al., "Highly-efficient electrotransformation of the yeast <i>Hansenula polymorpha</i> ," Curr. Genet. 25:305-310, Springer-Verlag (1994). |

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|---------------------|-----|--------------------|------------|-----------------------|-------|---------------|-------------|
|                     | AA4 | 5,821,090          | 10/13/1998 | Revuelta Doval et al. | 435   | 88            | 09/24/1996  |
|                     | AB4 | 5,837,528          | 11/17/1998 | Perkins et al.        | 435   | 252.31        | 02/06/1995  |
|                     | AC4 | 5,854,039          | 12/29/1998 | Raymond et al.        | 435   | 172.3         | 07/14/1997  |
|                     | AD4 | 5,866,404          | 02/02/1999 | Bradshaw et al.       | 435   | 252.33        | 12/06/1996  |
|                     | AE4 | 5,871,957          | 02/16/1999 | Kawasaki et al.       | 435   | 69.1          | 08/22/1994  |
|                     | AF4 | 5,891,672          | 04/06/1999 | Wang et al.           | 435   | 69.1          | 11/25/1997  |
|                     | AG4 | 5,925,538          | 07/20/1999 | Perkins et al.        | 435   | 66            | 08/24/1998  |
|                     | AH4 | 5,932,701          | 08/03/1999 | Black et al.          | 530   | 350           | 11/25/1997  |
|                     | AI4 | 6,017,728          | 01/25/2000 | Black et al.          | 435   | 69.1          | 11/25/1997  |
|                     | AJ4 | 6,146,866          | 11/14/2000 | Viitanen et al.       | 435   | 193           | 10/28/1998  |
|                     | AK4 | 3,932,390          | 01/13/1976 | Daigle et al.         | 260   | 243 R         | 04/29/1975  |

## FOREIGN PATENT DOCUMENTS

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|---------------------|----|--------------------|------|---------|-------|---------------|-------------|
|                     | AL |                    |      |         |       |               | Yes<br>No   |
|                     | AM |                    |      |         |       |               | Yes<br>No   |
|                     | AN |                    |      |         |       |               | Yes<br>No   |
|                     | AO |                    |      |         |       |               | Yes<br>No   |
|                     | AP |                    |      |         |       |               | Yes<br>No   |

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

|  |    |          |  |
|--|----|----------|--|
|  | AR | <u>4</u> | Fayura, L.R., and Kashchenko, V.E., "Thermostable riboflavin kinase in yeast <i>Pichia guilliermondii</i> ," <i>Ukr. Biokim. Zh.</i> 69:21-25, Naukova Dumka (1997). An English language abstract is at the end of the document. |
|  | AS | <u>4</u> | Fedorovych, D., et al., "Hexavalent chromium stimulation of riboflavin synthesis in flavinogenic yeast," <i>Biometals</i> 14:23-31, Kluwer Academic Publishers (March 2001).   |
|  | AT | <u>4</u> | Iimura, Y., et al., "Yeast Transformation without the Spheroplasting Process," <i>Agric. Biol. Chem.</i> 47:897-901, The Agricultural Chemical Society of Japan (1983).  |

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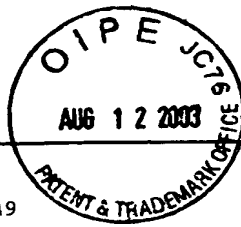
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|---------------------|-----|--------------------|------------|-----------------------|-------|---------------|-------------|
|                     | AA5 | 4,102,923          | 07/25/1978 | Pepperman, Jr. et al. | 260   | 553 R         | 09/08/1975  |
|                     | AB  |                    |            |                       |       |               |             |
|                     | AC  |                    |            |                       |       |               |             |
|                     | AD  |                    |            |                       |       |               |             |
|                     | AE  |                    |            |                       |       |               |             |
|                     | AF  |                    |            |                       |       |               |             |
|                     | AG  |                    |            |                       |       |               |             |
|                     | AH  |                    |            |                       |       |               |             |
|                     | AI  |                    |            |                       |       |               |             |
|                     | AJ  |                    |            |                       |       |               |             |
|                     | AK  |                    |            |                       |       |               |             |

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|                     | AL |                    |      |         |       |               | Yes<br>No   |
|                     | AM |                    |      |         |       |               | Yes<br>No   |
|                     | AN |                    |      |         |       |               | Yes<br>No   |
|                     | AO |                    |      |         |       |               | Yes<br>No   |
|                     | AP |                    |      |         |       |               | Yes<br>No   |

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

|  |    |          |   |
|--|----|----------|---|
|  | AR | <u>5</u> | Kasüske, A., et al., "Efficient Electropulse Transformation of Intact <i>Candida maltosa</i> Cells by Different Homologous Vector Plasmids," Yeast 8:691-697, John Wiley & Sons (1992).   |
|  | AS | <u>5</u> | Klinner, U., et al., "Hybridization of <i>Pichia guilliermondii</i> by Protoplast Fusion," in <i>Advances in Protoplast Research: Proceedings of the 5<sup>th</sup> International Protoplast Symposium</i> , Ferenczy, L. and G.L. Farkas, eds., Pergamon Press, pp.113-118 (1980). |
|  | AT | <u>5</u> | Kunze, G., et al., "Transformation of the industrially important yeasts <i>Candida maltosa</i> and <i>Pichia guilliermondii</i> ," J. Basic. Microbiol. 25:141-144, Akademie-Verlag (1985).   |

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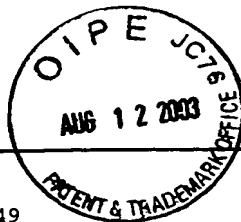
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|                     | AA |                    |      |      |       |               |             |
|                     | AB |                    |      |      |       |               |             |
|                     | AC |                    |      |      |       |               |             |
|                     | AD |                    |      |      |       |               |             |
|                     | AE |                    |      |      |       |               |             |
|                     | AF |                    |      |      |       |               |             |
|                     | AG |                    |      |      |       |               |             |
|                     | AH |                    |      |      |       |               |             |
|                     | AI |                    |      |      |       |               |             |
|                     | AJ |                    |      |      |       |               |             |
|                     | AK |                    |      |      |       |               |             |

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|                     | AL |                    |      |         |       |               | Yes<br>No   |
|                     | AM |                    |      |         |       |               | Yes<br>No   |
|                     | AN |                    |      |         |       |               | Yes<br>No   |
|                     | AO |                    |      |         |       |               | Yes<br>No   |
|                     | AP |                    |      |         |       |               | Yes<br>No   |

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|  |    |          |  |
|--|----|----------|--|
|  | AR | <u>6</u> | Kunze, G., et al., "Transformation of <i>Candida maltosa</i> and <i>Pichia guilliermondii</i> by a plasmid containing <i>Saccharomyces cerevisiae</i> ARG4 DNA," <i>Curr. Genet.</i> 9:205-209, Springer-Verlag (1985).  |
|  | AS | <u>6</u> | Kunze, G., et al., "Transformation of the Industrially Important Yeasts <i>Candida maltosa</i> and <i>Pichia guilliermondii</i> ," <i>Acta Biotechnol.</i> 6:28, Akademie-Verlag (1986).                                 |
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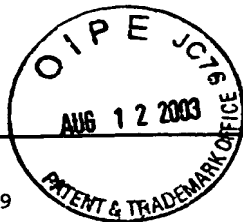
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ATTY. DOCKET NO.  
1533.0830003/MAC/RGM

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09/903,508

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ABBAS et al.

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**U.S. PATENT DOCUMENTS**

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|                     | AP |                    |      |         |       |               | Yes<br>No   |

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

|    |   |   |
|----|---|---|
| AR | 7 | Logvinenko, E.M., et al., "Biosynthesis of 6,7-dimethyl-8-ribityllumazine in Extracts of the Yeast <i>Pichia guilliermondii</i> ," Biokhimiya (Biochemistry) 47:778-783, Plenum Publishing Corp. Consultants Bureau, Plenum, New York (1982). |
| AS | 7 | Logvinenko, E.M., et al., "Cloning of the RIB7 Gene Encoding the Riboflavin Synthase of the Yeast <i>Pichia guilliermondii</i> ," Genetika 29:922-927, MAIK Nauka (1993). An English language abstract is at the end of the document.         |
| AT | 7 | Mauersberger, S., et al., "Candida maltosa," Chapter 12; Nonconventional Yeasts in Biotechnology: A Handbook, Wolf, K. ed., Springer-Verlag, pp.411-580 (1996).   |

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|  | AR | <u>8</u> | Meilhoc, E., et al., "High Efficiency Transformation of Intact Yeast Cells by Electric Field Pulses," <i>Bio/Technol.</i> 8:223-227, Nature Publishing Co. (1990).   |
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|  | AT | <u>8</u> | Piredda S., and Gaillardin, C., "Development of a Transformation System for the Yeast <i>Yamadazyma (Pichia) ohmeri</i> ," <i>Yeast</i> 10:1601-1612, John Wiley & Sons (1994).  |

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|                     | AP |                    |      |         |       |               | Yes<br>No   |

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|  | AT | 2 | Reiser, J., et al., "Transfer and Expression of Heterologous Genes in Yeasts Other Than <i>Saccharomyces cerevisiae</i> ," <i>Adv. Biochem. Engin./Biotech</i> 43:73-102 in <i>Applied Molecular Genetics</i> , J. Reiser, Springer-Verlag (1990).     |

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## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

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|  | AR | <u>10</u> | Rose, M.D., and Roach, J.R., "Cloning Genes by Complementation in Yeast," <i>Meth. Enzymol.</i> 194:195-230, Academic Press, Inc. (1991).   |
|  | AS | <u>10</u> | Scorer, C.A., et al., "Rapid Selection Using G418 of High Copy Number Transformants of <i>Pichia pastoris</i> for High-level Foreign Gene Expression," <i>Bio/Technology</i> 12:181-184, Nature Publishing Co. (1994).                  |
|  | AT | <u>10</u> | Shavlovskii, G.M., et al., "Flavinogenous Mutant of the Yeast <i>Pichia guilliermondii</i> with Damaged Transport of Iron," <i>Mikrobiologiya</i> 45:313-318, Nauka (1976). An English language abstract is at the end of the document. |

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|  | AR | <u>11</u> | Shavlovskii, G.M., et al., "Activity of the second step flavinogenesis enzyme, 2,5-diamino-6-hydroxy-4-ribosylaminopyrimidine-5'-phosphate reductase, in the yeast <i>Pichia guilliermondii</i> ," <i>Mikrobiologiya/Microbiology</i> 50:752-755, Consultants Bureau, New York, Plenum Publishing Corp. (1981). |
|  | AS | <u>11</u> | Sherman, F., et al., "Laboratory Course Manual for Methods in Yeast Genetics," Cold Spring Harbor Laboratory Press, pp. 91-103, 117-122 (1986).   |
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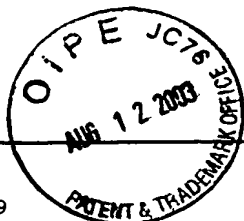
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|                     | AP |                    |      |         |       |               | Yes<br>No   |

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

|  |    |           |   |
|--|----|-----------|---|
|  | AR | <u>12</u> | Sibirnyi, A.A., et al., "Effect of Glucose and its Derivates on Systems of, Riboflavin Uptake and Excretion in Yeast <i>Pichia guilliermondii</i> ," <i>Biokhimiia</i> 43:1414-1422, Nauka (1978). An English language abstract is at the end of the document.      |
|  | AS | <u>12</u> | Sibirnyi, A.A., and Shavlovskii, G.M., "On Inhibition of Alkaline Phosphatase I of <i>Pichia guilliermondii</i> Yeast in vitro and in vivo," <i>Ukr. Biokhim. Zh.</i> 50:212-217, Naukova dumka (1978). An English language abstract is at the end of the document. |
|  | AT | <u>12</u> | Sibirny, A.A., " <i>Pichia guilliermondii</i> ," in: Nonconventional Yeasts in Biotechnology: A Handbook, Wolf, K., ed., Springer-Verlag, pp.255-275 (1996).  |

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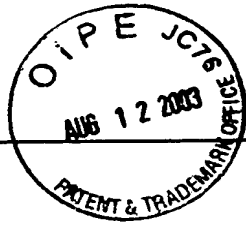
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|  | AR | <u>13</u> | Sreekrishna, K., and Kropp, K.E., "Pichia pastoris," in Nonconventional Yeasts in Biotechnology, K. Wolf, ed., Springer-Verlag, pp.215-226 (1996).  |
|  | AS | <u>13</u> | Stahmann, K.-P., et al., "Three biotechnical processes using <i>Ashbya gossypii</i> , <i>Candida famata</i> , or <i>Bacillus subtilis</i> compete with chemical riboflavin production," <i>Appl. Microbiol. Biotechnol.</i> 53:509-516, Springer-Verlag (May 2000). |
|  | AT | <u>13</u> | Steiner, S., and Philippsen, P., "Sequence and promoter analysis of the highly expressed <i>TEF</i> gene of the filamentous fungus <i>Ashbya gossypii</i> ," <i>Mol. Gen. Genet.</i> 242:263-271, Springer-Verlag (1994).   |

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|  |    |           |  |
|--|----|-----------|--|
|  | AR | <u>14</u> | Takagi, M., et al., "Construction of a Host-Vector System in <i>Candida maltosa</i> by Using an ARS Site Isolated from Its Genome," <i>J. Bacteriol.</i> 167:551-555, American Society for Microbiology (1986).  |
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|  | AT | <u>14</u> | Voronovsky, A., and Sybirny, A.A., "Development of cloning and expression transformation systems for nonconventional yeasts," <i>Biopolymers and Cell</i> 15:122-132, Naukova Dumka (March-April 1999). An English language summary is at the end of the document. |

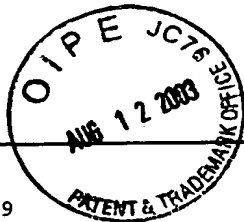
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FORM PTO-1449

INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO.  
1533.0830003/MAC/RGM

APPLICATION NO.  
09/903,508

APPLICANT  
ABBAS *et al.*

FILING DATE  
July 13, 2001

GROUP  
1646

**U.S. PATENT DOCUMENTS**

| EXAMINER<br>INITIAL |    | DOCUMENT<br>NUMBER | DATE | NAME | CLASS | SUB-<br>CLASS | FILING DATE |
|---------------------|----|--------------------|------|------|-------|---------------|-------------|
|                     | AA |                    |      |      |       |               |             |
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|                     | AJ |                    |      |      |       |               |             |
|                     | AK |                    |      |      |       |               |             |

**FOREIGN PATENT DOCUMENTS**

| EXAMINER<br>INITIAL |    | DOCUMENT<br>NUMBER | DATE | COUNTRY | CLASS | SUB-<br>CLASS | TRANSLATION |
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|                     | AL |                    |      |         |       |               | Yes<br>No   |
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|                     | AO |                    |      |         |       |               | Yes<br>No   |
|                     | AP |                    |      |         |       |               | Yes<br>No   |

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

|  |    |           |   |
|--|----|-----------|---|
|  | AR | <u>15</u> | Voronovsky, A.Y., "Development of Genetic Transformation Systems for the Flavinogenic Yeasts <i>Pichia guilliermondii</i> and <i>Candida famata</i> ," Dissertation, pp. 1-138, Academy of Sciences of the Ukraine (June 2001) (translation attached as document AS15). |
|  | AS | <u>15</u> | Voronovsky, A.Y., "Development of Genetic Transformation Systems for the Flavinogenic Yeasts <i>Pichia guilliermondii</i> and <i>Candida famata</i> ," pp. 1-97, Ralph McElroy Translation Company, Austin, Texas (June 2001).  |
|  | AT | <u>15</u> | Yang, C., et al., "Conservation of ARS Elements and Chromosomal DNA Replication Origins on Chromosomes III of <i>Saccharomyces cerevisiae</i> and <i>S. carlsbergensis</i> ," <i>Genetics</i> 152:933-941, Genetics Society of America (July 1999).                     |

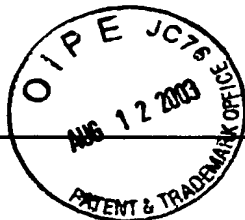
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FORM PTO-1449

## INFORMATION DISCLOSURE STATEMENT

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|                     | AJ |                    |      |      |       |               |             |
|                     | AK |                    |      |      |       |               |             |

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|                     | AL |                    |      |         |       |               | Yes<br>No   |
|                     | AM |                    |      |         |       |               | Yes<br>No   |
|                     | AN |                    |      |         |       |               | Yes<br>No   |
|                     | AO |                    |      |         |       |               | Yes<br>No   |
|                     | AP |                    |      |         |       |               | Yes<br>No   |

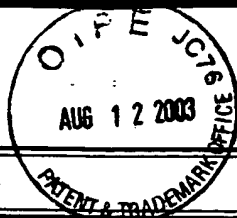
## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

|  |    |           |   |
|--|----|-----------|---|
|  | AR | <u>16</u> | Yang, V.W., et al., "High-Efficiency Transformation of <i>Pichia stipitis</i> Based on Its <i>URA3</i> Gene and a Homologous Autonomous Replication Sequence, ARS2," <i>Appl. Env. Microbiol.</i> 60:4245-4254, American Society for Microbiology (1994).   |
|  | AS | <u>16</u> | Zakalskii, A.E., et al., "Cloning of the RIB1 gene coding for the enzyme of the first stage of flavinogenesis in the yeast <i>Pichia guilliermondii</i> , GTP cyclohydrolase, in <i>Escherichia coli</i> cells," <i>Genetika</i> 26:614-620, MAIK Nauka (1990). An English language abstract is at the end of the document. |
|  | AT | <u>16</u> | Zvjagilskaia, R.A., et al., "The Respiration System of the Yeast <i>Pichia guilliermondii</i> at Different Levels of Flavinogenesis," <i>Mikrobiologiya</i> 47:975-984, Nauka (1978). An English language abstract is at the end of the document.   |

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## TRANSMITTAL

Electronic Version v1.1

Stylesheet Version v1.1.0

| <b>Title of<br/>Invention</b>   | Transformation Systems for Flavinogenig Yeast |                |               |             |                |   |       |              |
|---|---|----------------|---------------|-------------|----------------|---|-------|--------------|
| <p>Application Number: 09/903508 *09/903508*</p> <p>Date: 2001-07-13</p> <p>First Named Applicant: Charles Abbas</p> <p>Confirmation Number: 3856</p> <p>Attorney Docket Number: 1533.0830003</p>   |   |                |               |             |                |   |       |              |
| <p>I hereby certify that the use of this system is for OFFICIAL correspondence between patent applicants or their representatives and the USPTO. Fraudulent or other use besides the filing of official correspondence by authorized parties is strictly prohibited, and subject to a fine and/or imprisonment under applicable law.</p> <p>I, the undersigned, certify that I have viewed a display of document(s) being electronically submitted to the United States Patent and Trademark Office, using either the USPTO provided style sheet or software, and that this is the document (s) I intend for initiation or further prosecution of a patent application noted in the submission. This document(s) will become part of the official electronic record at the USPTO.</p> |   |                |               |             |                |   |       |              |
| <table border="1"><thead><tr><th>Submitted by:</th><th>Elec. Sign.</th><th>Sign. Capacity</th></tr></thead><tbody><tr><td>Michele A. Cimbala<br/>Registered Number: 33,851</td><td>/mac/</td><td><br/>Attorney</td></tr></tbody></table>  |   |                | Submitted by: | Elec. Sign. | Sign. Capacity | Michele A. Cimbala<br>Registered Number: 33,851 | /mac/ | <br>Attorney |
| Submitted by:   | Elec. Sign.                                   | Sign. Capacity |               |             |                |   |       |              |
| Michele A. Cimbala<br>Registered Number: 33,851   | /mac/   | <br>Attorney   |               |             |                |   |       |              |

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**Comments**

**ELECTRONIC INFORMATION DISCLOSURE STATEMENT**

Electronic Version v18

Stylesheet Version v18.0

**Title of  
Invention****Transformation Systems for Flavinogenig Yeast**

Application Number: 09/903508 \*09/903508\*

Confirmation Number: 3856

First Named Applicant: Charles Abbas

Attorney Docket Number: 1533.0830003

Search string: ( 6001597 ).pn.

**US Patent Documents**

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

| init | Cite.No. | Patent No. | Date       | Patentee       | Kind | Class | Subclass |
|------|----------|------------|------------|----------------|------|-------|----------|
|      | 1        | 6001597    | 1999-12-14 | Raymond et al. |      |       |          |

**Signature****Examiner Name****Date**

**UNITED STATES PATENT AND TRADEMARK OFFICE  
ACKNOWLEDGEMENT RECEIPT**

Electronic Version 1.1

Stylesheet Version v1.1.1

| <b>Title of Invention</b>      | Transformation Systems for Flavinogenig Yeast  |              |                   |           |              |                                      |                           |      |       |  |
|--------------------------------|--|--------------|-------------------|-----------|--------------|--------------------------------------|---------------------------|------|-------|--|
| <b>Submission Type:</b>        | Information Disclosure Statement   |              |                   |           |              |                                      |                           |      |       |  |
| <b>Application Number:</b>     | 09/903508  | *09/903508*  |                   |           |              |                                      |                           |      |       |  |
| <b>EFS ID:</b>                 | 41399  |              |                   |           |              |                                      |                           |      |       |  |
| <b>Server Response:</b>        | <table border="1"><thead><tr><th>Confirmation Code</th><th>Message</th></tr></thead><tbody><tr><td>ISVR1</td><td>Successfully received the submission</td></tr><tr><td>ICON1</td><td>3856</td></tr><tr><td>ISYS5</td><td>Filename= N/A BusinessRule= Validation System/Function Call Information.<br/>#Supporting Msg:Server unable to validate the Confirmaton/Application numbers at this time. They will be checked by PTO personnel later.</td></tr></tbody></table> |              | Confirmation Code | Message   | ISVR1        | Successfully received the submission | ICON1                     | 3856 | ISYS5 | Filename= N/A BusinessRule= Validation System/Function Call Information.<br>#Supporting Msg:Server unable to validate the Confirmaton/Application numbers at this time. They will be checked by PTO personnel later. |
| Confirmation Code              | Message  |              |                   |           |              |                                      |                           |      |       |  |
| ISVR1                          | Successfully received the submission   |              |                   |           |              |                                      |                           |      |       |  |
| ICON1                          | 3856   |              |                   |           |              |                                      |                           |      |       |  |
| ISYS5                          | Filename= N/A BusinessRule= Validation System/Function Call Information.<br>#Supporting Msg:Server unable to validate the Confirmaton/Application numbers at this time. They will be checked by PTO personnel later.   |              |                   |           |              |                                      |                           |      |       |  |
| <b>First Named Applicant:</b>  | Charles Abbas  |              |                   |           |              |                                      |                           |      |       |  |
| <b>Attorney Docket Number:</b> | 1533.0830003   |              |                   |           |              |                                      |                           |      |       |  |
| <b>Timestamp:</b>              | 2003-06-03 16:49:30 EDT  |              |                   |           |              |                                      |                           |      |       |  |
| <b>From:</b>                   | us   |              |                   |           |              |                                      |                           |      |       |  |
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Abbas *et al.*

Appl. No. 09/903,508

Filed: July 13, 2001

For: **Transformation Systems for  
Flavinogenic Yeast**

Confirmation No. 3856

Art Unit: 1636

Examiner: Lambertson, D.

Atty. Docket: 1533.0830003/MAC/RGM

**Third Supplemental Information Disclosure Statement**

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Commissioner for Patents  
Washington, D.C. 20231

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Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98. The numbering on this Third Supplemental Information Disclosure Statement is a continuation of the numbering in Applicants' Information Disclosure Statement filed on July 18, 2002 in connection with the above-captioned application. A copy of each document is also provided.

In accordance with 37 C.F.R. § 1.98(a)(3), Applicants' undersigned representative submits the following, concise explanation of the relevance of the non-English language document AO1 cited on Form PTO 1449:

Document AO1, WO 91/18103 A1 is in the French language and appears to relate to a method of electroporation. An English language abstract can be found on the face page of this publication.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.


This Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits. No statement or fee is required.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered. This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist.

Consideration of the cited documents and making the same of record in the prosecution of the above-identified application is respectfully requested. The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

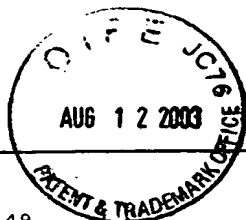
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Michele A. Cimbala  
Attorney for Applicants  
Registration No. 33,851

Date: June 12, 2003

1100 New York Avenue, N.W.  
Washington, D.C. 20005-3934  
(202) 371-2600



FORM PTO-1449

THIRD SUPPLEMENTAL  
INFORMATION DISCLOSURE STATEMENTATTY. DOCKET NO.  
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|                     | AM  |                 |            |         |       |           | Yes<br>No   |
|                     | AN  |                 |            |         |       |           | Yes<br>No   |
|                     | AO1 | WO 91/18103 A1  | 11/28/1991 | WIPO    |       |           | Yes<br>X No |
|                     | AP  |                 |            |         |       |           | Yes<br>No   |

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

|    |           |  |
|----|-----------|--|
| AR | <u>17</u> | Faber, K.N., et al., "Highly-efficient electrotransformation of the yeast <i>Hansenula polymorpha</i> ," Curr. Genet. 25:305-310, Springer-Verlag (1994)   |
| AS | <u>17</u> | Seifert, H.S., et al., "Shuttle mutagenesis: A method of transposon mutagenesis for <i>Saccharomyces cerevisiae</i> ," Proc. Natl. Acad. Sci. USA 83:735-739, The National Academy of Sciences (1986)            |
| AT | <u>17</u> | Tan, X., et al., "The <i>Hansenula polymorpha</i> PER8 Gene Encodes a Novel Peroxisomal Integral Membrane Protein Involved in Proliferation," J. Cell Biol. 128:307-319, The Rockefeller University Press (1995) |

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|                     | AO |                 |      |         |       |           | Yes<br>No   |
|                     | AP |                 |      |         |       |           | Yes<br>No   |

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

|  |    |           |  |
|--|----|-----------|--|
|  | AR | <u>18</u> | Database EMBL 'Online!', Database Entry SC35112, Database Accession No. U35112 (1995)                        |
|  | AS | <u>18</u> | Database EMBL 'Online!', Database Entry AF347016, Database Accession No. AF347016 (March 19, 2001)           |
|  | AT | <u>18</u> | International Search Report for International Patent Application No. PCT/US01/22083, mailed October 10, 2002 |

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